

IN THE CLAIMS:

1. (Currently Amended) A retroviral vector for carrying a target gene specific insert into a cell in order to modify the expression of a target gene having a sense strand and an antisense strand, comprising:

(a) ~~a promoter selected from the group consisting of~~

(i) a U6 promoter sequence of:

ttcccatgattccttcatttgcataacgatacaaggctgtagagataattagaattaattgactgtaacacaaagatattagta
caaaatacgtgacgtagaaagtaataatttcttgggtagtttgcagttttlaaaattatgttttaaatggactatcatatgcttaccgtaac
ttgaaagtatttcgatttcttgcctttatatacttcttggaaggacgaaacaccg (SEQ ID NO:7); and

(ii) ~~an H1 promoter (SEQ ID NO:14);~~

(b) a polylinker region;

(c) a target gene specific insert comprising double stranded RNA, wherein said double stranded RNA comprises a sense portion that is complementary to a portion of the antisense strand of the target gene, and an antisense portion that is complementary to the sense portion, so that the sense portion and antisense portion anneal, and the double stranded RNA folds back upon itself.

2. (Canceled)

3. (Currently Amended) The retroviral vector of Claim 1, wherein the polylinker region comprises a nucleotide sequence of ~~selected from the group consisting of:~~

(a) ~~aattc gaetggcacagcctccagg ttcaagaga cctggaggetgtgccagtc tttt ggaa a (SEQ ID NO:1)~~

(b) ~~aattc gctgggactcctttgcatg ttcaagaga catgcaaggagtcaccagc tttt ggaa a (SEQ ID NO:2);~~

(c) ~~gattc gaetggcacagcctccagg ttcaagaga cctggaggetgtgccagtc tttt ggaa a (SEQ ID NO:3);~~

(d) gatcc gctgggactcctttgcatg ttcaagaga catgcaaggagtcaccagc tttt ggaa a (SEQ ID NO:4)

(e) ~~aattc gactccagtggtaattctac ttcaagaga gtgattaccactggagtc tttt ggaa a (SEQ ID NO:5); and~~

~~(f) ——— gatcc gactccagtggttaattctac ttaagaga gtagattaccactggagtc ttttt ggaa a (SEQ ID NO:6).~~

4. (Previously Presented) The retroviral vector of Claim 1, wherein the sense and antisense regions of the target gene specific insert each comprise a length of 19-30 nucleotides.

5. (Previously Presented) The retroviral vector of Claim 4, wherein the sense and antisense regions of the target gene specific insert each comprise a length of 19-25 nucleotides.

6. (Previously Presented) The retroviral vector of Claim 5, wherein the sense and antisense regions of the target gene specific insert each comprise a length of 19-23 nucleotides.

7. (Canceled)

8. (Canceled)

9. (Previously Presented) The retroviral vector of Claim 1, wherein the retroviral vector is a modified Lentivirus in which:

- (a) the endogenous CMV promoter of the Lentivirus has been removed; and
- (b) a REV element that binds to a REV response element (RRE) is inserted.

10. (Previously Presented) A cell infected with the retroviral vector of Claim 1, wherein said cell has said target gene in its genome.

11. (Currently Amended) A modified Lentivirus vector for carrying double stranded RNA into a cell in order to modify the expression of a target gene having a sense strand and an antisense strand, wherein:

(a) the endogenous CMV promoter of the Lentivirus has been removed, said modified Lentivirus vector comprising:

- (i) a REV element that binds to a REV response element (RRE) is inserted;
- (ii) a U6 promoter sequence of

ttcccatgattccttcattttgcatatacgatacaaggctgttagagagataattagaattaatttgactgtaaacacaaagatattagtaaaaatacgtgacgta
gaaagtaataatttcttggttagttgcagtttttaaattatgttttaaatggactatcatatgcttaccgtaacttgaaagtattcgatttctgcctttatatatcttg
tggaaggacgaaacaccg (SEQ ID NO:7); and

- (iii) a polylinker region;

wherein said double stranded RNA comprises a sense portion that is complementary to a portion of the antisense strand of the target gene, and an antisense portion that is complementary to the sense portion so that the sense portion and antisense portion anneal, and the double stranded RNA folds back upon itself.

12. (Currently Amended) The modified Lentivirus vector of Claim 11, wherein said polylinker region comprises a nucleotide sequence of ~~is selected from the group consisting of:~~

- (a) ~~aattc gaetggcaacagcctccagg ttaagaga cctggaggetgtgccagtc tttt ggaa a (SEQ ID NO:1)~~
- (b) ~~aattc gctgggaactcctttgcatg ttaagaga catgcaaggagtcceagc tttt ggaa a (SEQ ID NO:2);~~
- (c) ~~gatec gaetggcaacagcctccagg ttaagaga cctggaggetgtgccagtc tttt ggaa a (SEQ ID NO:3);~~
- (d) gatcc gctgggactcctttgcatg ttaagaga catgcaaggagtcceagc tttt ggaa a (SEQ ID NO:4)
- (e) ~~aattc gactccagtggttaattctac ttaagaga gtagattaccactggagtc tttt ggaa a (SEQ ID NO:5); and~~
- (f) ~~gatec gactccagtggttaattctac ttaagaga gtagattaccactggagtc tttt ggaa a (SEQ ID NO:6).~~

13. (Previously Presented) The modified Lentivirus vector of Claim 12, further comprising a reporter gene.

14. (Currently Amended) The modified Lentivirus vector of Claim 13, wherein said reporter gene is ~~selected from the group consisting of Blasti and hrGFP.~~

15. (Currently Amended) The modified Lentivirus vector of Claim 14 wherein said modified Lentivirus vector is pLenti-U6-Blasti, which comprises the nucleotide sequence of SEQ ID NO:8 ~~selected from the group consisting of:~~

~~—— (a) pLenti U6 Blasti, which comprises the nucleotide sequence of SEQ ID NO:8; and~~

~~—— (b) pLenti U6 hrGFP, which comprises the nucleotide sequence of SEQ ID NO:9.~~

16-22. (Canceled)

23. (New) A retroviral vector for carrying a target gene specific insert into a cell in order to modify the expression of a target gene having a sense strand and an antisense strand, comprising:

(a) a U6 promoter having a sequence of:

ttcccatgattccttcataattgcatatacgatacaaggctgttagagagataaattagaattaattgactgtaaacacaaagatattagtacaaaatac
gtgacgtagaaagtaataatttcttggttagttgcagtttttaaattatgttttaaatggactatcatatgcttaccgtaactgaaagt
atttcgatttctgcctttatatacttgtggaaggacgaaacaccg (SEQ ID NO:7);

(b) a polylinker region comprising a nucleotide sequence of gatcc gctgggactccttgcattg

ttcaagaga catgcaaaggagtcccagc tttt ggaa a (SEQ ID NO:4)

- (c) a target gene specific insert comprising double stranded RNA, wherein said double stranded RNA comprises a sense portion that is complementary to a portion of the antisense strand of the target gene, and an antisense portion that is complementary to the sense portion, so that the sense portion and antisense portion anneal, and the double stranded RNA folds back upon itself.

24. (New) The retroviral vector of Claim 23, wherein the sense and antisense regions of the target gene specific insert each comprise a length of 19-30 nucleotides.

25. (New) The retroviral vector of Claim 24, wherein the sense and antisense regions of the target gene specific insert each comprise a length of 19-25 nucleotides.

26. (New) The retroviral vector of Claim 25, wherein the sense and antisense regions of the target gene specific insert each comprise a length of 19-23 nucleotides.

27. (New) A modified Lentivirus vector for carrying double stranded RNA into a cell in order to modify the expression of a target gene having a sense strand and an antisense strand, wherein:

(a) the endogenous CMV promoter of the Lentivirus has been removed, said modified Lentivirus vector comprising:

- (i) a REV element that binds to a REV response element (RRE) is inserted;
- (ii) a U6 promoter sequence of

ttcccatgattccttcatattgcatatacgatacaaggctgtagagagataattagaattaatttgactgtaaacacaaagatattagtacaaaatacgtgacgta
gaaagtaataatttcttggttagttgcagtttttaaattatgttttaaattggactatcatatgcttaccgtaacttgaaagtatttcgatttcttgcctttatatatcttg
tggaaggacgaaacaccg (SEQ ID NO:7); and

(b) a polylinker region comprising a nucleotide sequence of: gatcc gctgggactcctttgcatg ttcaagaga catgcaaaggagtcccagc tttt ggaa a (SEQ ID NO:4);

wherein said double stranded RNA comprises a sense portion that is complementary to a portion of the antisense strand of the target gene, and an antisense portion that is complementary to the sense portion so that the sense portion and antisense portion anneal, and the double stranded RNA folds back upon itself.

28. (New) The modified Lentivirus vector of Claim 27, further comprising a reporter gene.

29. (New) The modified Lentivirus vector of Claim 27, wherein said reporter gene is selected from the group consisting of Blasti and hrGFP.

30. (New) The modified Lentivirus vector of Claim 29, wherein said vector is pLenti-U6-Blasti, which comprises the nucleotide sequence of SEQ ID NO:8.

31. (New) A modified lentivirus pLenti-U6-Blasti, comprising the nucleotide sequence of SEQ ID NO:8.

32. (New) A cell transformed or transfected with the modified lentivirus of Claim 31.